

REMARKS

Claims 1-2, 6-7, and 11-18 had been pending, claims 3-5 and 8-10 having been previously cancelled. In this paper, claims 1 and 6 have been amended, without disclaimer, to recite “[a] method of purifying contaminated soil containing clay or silt by microorganisms... wherein the microbes comprise the MO7 strain.” Support for these amendments may be found at least in the specification at page 8, lines 15-18; page 11, lines 15-18; and page 16, lines 5-6. Claims 2 and 7 have been amended, without disclaimer, to recite “wherein the microbes and the perlite are added separately to the contaminated soil.” Support for these amendments may be found, at least at page 8, lines 26-29; and page 13, line 11-19.

Thus, with these amendments, claims 1-2, 6-7, and 11-18 are pending for examination in this application.

Withdrawal of the Rejection of Claims 1, 2, 6, 7 and 11-18 under 35 U.S.C. § 102(b)

Applicants thank the Examiner for withdrawing the rejection to claims 1, 6, 15, 16, 17, and 18 under 35 U.S.C. § 102(b), as being anticipated by Rhykerd et al. (“Rhykerd”). Action at page 2.

Rejection of claims 1, 6 and 11-18 under 35 U.S.C. § 103(a)

The Examiner rejected claims 1, 6 and 11-18 under 35 U.S.C. § 103(a) as being unpatentable over Rhykerd in view of Garden Series Basics. Action at page 2. Applicants respectfully traverse for the reasons set forth below.

In order to render a claim obvious, a document or combination of documents must have taught or suggested every element of the claim. M.P.E.P. § 2143.03 at 2100-131. In addition, there must have been a reason for one skilled in the art to modify the document or documents to arrive at the claimed invention. M.P.E.P. § 2143.01 at 2100-127. Finally, one skilled in the art

must have had a reasonable expectation of success in modifying the documents to arrive at the claimed invention. M.P.E.P. § 2143.02 at 2100-130. The Supreme Court, in the recent *KSR* case, recognized that a showing of “teaching, suggestion, or motivation” could provide helpful insight in determining whether the claimed subject matter is obvious under section 103(a). *KSR Int'l Co. v. Teleflex Inc., et al.*, 127 S. Ct. 1727, 1731 (2007). The cited references do not render obvious the claimed invention.

Solely to expedite prosecution and without acquiescing to the rejection, Applicants have amended claims 1 and 6. Claims 11, 12, 15 and 16 depend from claim 1. Claims 13, 14, 17 and 18 depend from claim 6. As amended, independent claims 1 and 6 recite: “[a] method of purifying contaminated soil containing clay or silt by microorganisms...whereby the microbes comprise the MO7 strain.”

The MO7 strain disclosed in the instant application is unique in that it is a novel organism first disclosed in International Application No. PCT/JP97/02872 and International Publication No. WO 98/07831 (copy enclosed) and is deposited as FERM BP-5624. The strain has a high ability to decompose trichloroethylene and “was selected and characterized for its morphological and physiological properties.” WO 98/07831 at page 21, line 36 to page 22, line 2; *see also id.* at page 13, Table 2. The strain is unique in that it “does not belong to any of the known genera of microorganisms and [it] has a very high ability of decomposing trichloroethylene as compared with any of the conventionally known microorganisms....” *See id.* at page 7, lines 10-16. This unique microbe allows trichloroethylene to be “degraded directly at a higher efficiency compared with [other] bacteria.” Specification at page 8, lines 15-18.

Neither Rhykerd nor Gardening Series teach or suggest the use of microbes which “comprise the MO7 strain” to purify soil. *See* independent claims 1 and 6.

Rhykerd only contemplates utilizing unknown, generic microbes already present in the soil. *See, e.g.*, Rhykerd at page 280, right column (“Tubes were incubated at 30°C for 21 days and examined for oil disappearance or microbial growth to be considered positive for the presence of oil-degrading microorganisms.”). Rhykerd makes no mention of the specific type or strain of microorganism to be used, and certainly does not contemplate the addition of a novel microorganism to degrade trichloroethylene at a higher efficiency compared with other bacteria. *See* specification at page 8. Indeed, the Office recognizes this limitation in its characterization of Rhykerd as “utilizing microbes already present in the soil.” Action at page 2, item 3.

Gardening Series does mention microbes, but again only in the context of microorganisms in the soil that use nitrogen to break down wood. *See* Gardening Series at pages 1-2.

Specifically, Gardening Series states

Wood products can tie up nitrogen in the soil and cause nitrogen deficiency in plants. Microorganisms in the soil use nitrogen to break down the wood. Within a few months, the nitrogen is released and again becomes available to plants.

Id. Thus, Gardening Series does not teach or suggest the addition of microbes to purify soil, let alone teach or suggest the addition of the MO7 strain of microbes.

Thus, neither Rhykerd nor Gardening Series teach or suggest the addition of the MO7 strain to purify soil. Further, one skilled in the art would have no reason to modify Rhykerd and Gardening Series to add microorganisms because both references contemplate using microorganisms already present in the soil.

Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 6 and 11-18 under 35 U.S.C. § 103(a).

Rejection of Claims 2 and 7 under 35 U.S.C. § 103(a)

The Examiner rejected claims 2 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Rhykerd in view of Gardening Series and Glaze et al. (U.S. Patent No. 5,593,888) (“Glaze”). Action at page 4. Applicants respectfully traverse for the reasons set forth below.

As discussed above, solely to facilitate prosecution and without acquiescing to the rejection, Applicants have amended claims 1 and 6 to recite “[a] method of purifying contaminated soil containing clay or silt by microorganisms...whereby the microbes comprise the MO7 strain.” Applicants have also amended dependent claims 2 and 7 to recite “wherein the microbes and the perlite are added separately to the contaminated soil.”

Applicants submit that the amendment of claims 1, 2, 6 and 7 to recite “the MO7 strain” obviates these rejections. First, as discussed above, Rhykerd does not teach or suggest microbes which “comprise the MO7 strain.” *See* claim 1. Rhykerd only contemplates utilizing microbes already present in the soil, and does not contemplate the use of a novel microorganism to degrade trichloroethylene at a higher efficiency compared with other bacteria. *See* Rhykerd at page 280, right column, *see also* specification at page 8. Thus, Rhykerd neither teaches nor suggests adding a novel, unique microorganism to purify soil.

Next, and also as noted above, Gardening Series’ only mention of microbes is the use of soil microorganisms and in the context of wood and nitrogen. *See* Gardening Series at pages 1-2. Thus, Gardening Series, like Rhykerd, neither teaches nor suggests adding a novel microorganism to purify soil, let alone the MO7 strain claimed in the instant application.

Glaze teaches the addition of bacteria to the soil, Glaze at Col. 10, line 62 to Col. 11, line 2. However, Glaze does not contemplate the use of a unique microorganism with a very high ability to decompose trichloroethylene. *See* WO 98/07831 at page 7, lines 10-16; specification at

page 8, lines 15-18. Glaze merely contemplates using commercially available waste degrading bacteria. *Id.* at Col. 10, line 62 to Col. 11, line 3. No mention of unique microorganisms is suggested; Glaze simply suggests using “the formula most appropriate for the specific **site**,” which is known and manufactured by a commercial manufacturer. *See id.*; *see also* Col. 11, lines 4-6.

Moreover, to the extent that Glaze contemplates the addition of bacteria, it does so only with the addition of nutrients. Specifically, Glaze teaches that nutrients, such as HH MICRO-2 or HH MICRO-51D, should be added in as well, to enhance the decomposition of the contaminants. *See* Glaze at Col. 10, line 31-36 (“From the biological standpoint, a balance biological diet designed to enhance and accelerate degradation of hydrocarbon contaminants can first be provided.”). Indeed, Glaze states that its method differs from that of the prior art “in that it approaches bacterial activity from a total nutritional point of view.” *Id.* at Col. 7, lines 18-20; *see also* Col. 10, lines 31-33; Col. 12, line 60 to Col. 14, line 13. Indeed, in every instance, both in the description and the Examples themselves, Glaze requires that nutrients be added. *See, e.g.*, Glaze at Col. 10, lines 31-36; Col. 15, lines 39-41; Col. 27, lines 13-42; Examples 1-4.

Preferably, Glaze teaches that the nutrients are added to the contaminated soil in advance of adding bacteria. *See id.* at Col. 10, lines 33-36; Col. 11, lines 8-28. Thus, Glaze cannot suggest the claimed method of simply adding microorganisms. *See* M.P.E.P. § 2145 at 2100-160.

Indeed, the unique properties of the MO7 strain do not necessitate that additional nutrients be added to the soil. The high ability of the MO7 strain to decompose trichloroethylene negates the necessity for such an addition. *See* WO 98/07831 at page 7, lines 10-16; *see also* specification at page 8, lines 15-18. 3

One skilled in the art would have no reason to combine Glaze with Rhykerd and Gardening Series because no reference teaches or suggests all the claim limitations, particularly the use of the MO7 strain of microorganism. *See* claims 1 and 6. Rhykerd and Gardening Series only disclose the use of microbes already present in the soil, while Glaze simply focuses on bacteria with additional nutrients. Further, neither Rhykerd nor Glaze contemplates the use of a unique microorganism with a high ability to decompose trichloroethylene. For the above reasons, one skilled in the art would have no reason to combine the references.

Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 2 and 7 under 35 U.S.C. § 103(a).

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request reconsideration of the application and the timely allowance of the pending claims. With these amendments, Applicants submit that this application is in good condition for allowance. If the Examiner does not find the claims allowable, the undersigned requests that, prior to taking action, the Examiner call her at (650) 849-6611 to set up an interview.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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